

# *The Integrated Deepwater System Program*



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# U. S. Coast Guard Missions

## Homeland Security Missions

- Ports, Waterways and Coastal Security
- Drug interdiction
- Migrant interdiction
- Defense readiness
- Other law enforcement

## Traditional Missions

- Marine safety
- Search and rescue
- Aids to navigation
- Living marine resources (fisheries law enforcement)
- Marine environment protection
- Ice operations



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# Homeland Security Strategy

## Comprehensive National Strategy



*Deepwater  
Mission Task  
Sequence*



*Coast Guard  
Maritime Homeland  
Defense Strategy*



*National Strategy  
for Homeland  
Defense*

**Surveil**

**Conduct layered maritime security operations**

**Prevent Terrorist  
Attacks within the  
United States**

**Detect**

**Establish & maintain a baseline level of  
maritime security**

**Strengthen the port security posture**

**Reduce America's  
Vulnerability to  
Terrorism**

**Classify**

**Build & leverage Maritime Domain Awareness  
Develop required capabilities, improve core  
competencies & recapitalize the CG**

**Identify**

**Organize & sustain a public private sector  
partnership; increase international partnership**

**Minimize the Danger  
and Recover from  
the Attacks that do  
Occur**

**Prosecute**

**Prepare, equip & train forces to transition  
between & conduct HLS & HLD ops**



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# Current Coast Guard Capabilities

1985-2005



1984-2004



*The average age of our Deepwater cutters is 29...The Coast Guard fleet of High and Medium Endurance Cutters is older than 37 of the 39 (naval) fleets worldwide...*

1972-1997



1965-2008



1964-2007



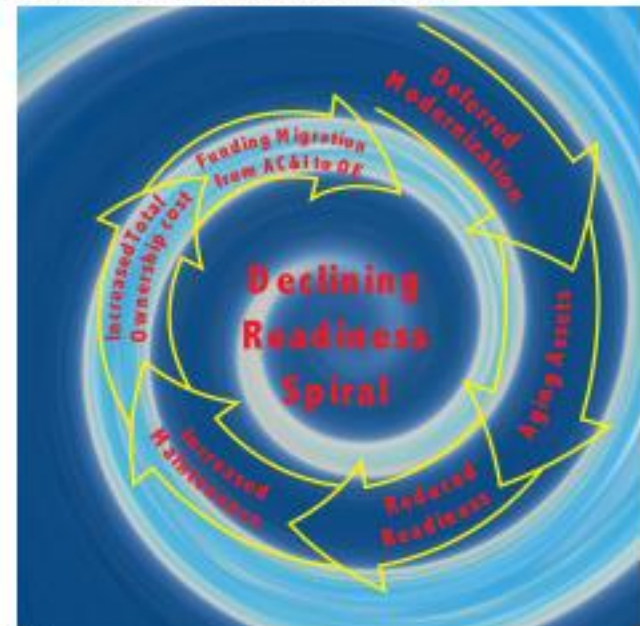
1990-2005



1982-2002



1982-2013



Year First Commissioned

Expiration of Planned Service Life



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# Solution: Integrated Deepwater System

## Performance Based:

- Focus on capabilities not assets

## Acquisition Strategy:

- **Partner** with system integrator
- Acquire **integrated system of** surface, air, C4ISR, and logistics **systems**

## Overarching Objective:

- **Maximize Operational Effectiveness while Minimizing Total Ownership Costs**



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# Our Partner

- **Contract awarded 25 June 2002 to Integrated Coast Guard Systems (ICGS), a joint venture between Lockheed Martin and Northrop Grumman.**



**ARINC**

**Bell Agusta Aerospace Corp.**

**Bell Helicopter Textron**

**EADS CASA**

**EADS Eurocopter**

**Halter – Bollinger**

**L3 Communications**

**LM Management & Data Systems**

**LM Technology Services**

**M. Rosenblatt & Sons**

**Northrop Grumman Full Service Operations**

**Northrop Grumman IT**

**PROSOFT**

**United Defense, LP**

**People, Performance, and Partnership**



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# Contracting Strategy

- Five-year base award with option to award up to five additional five-year award terms
- Delivery Order/Task Order Contract will break annual funding into usable segments
- Emphasis has been placed on beneficial applicability and identification of COTS/NDI solutions since program inception
- Contract incorporates many acquisition reforms, innovations and current best practices, and is constructed to provide flexibility to adapt to:
  - Budget fluctuations
  - Legislative mandates
  - Technology refreshment
  - Mission evolution



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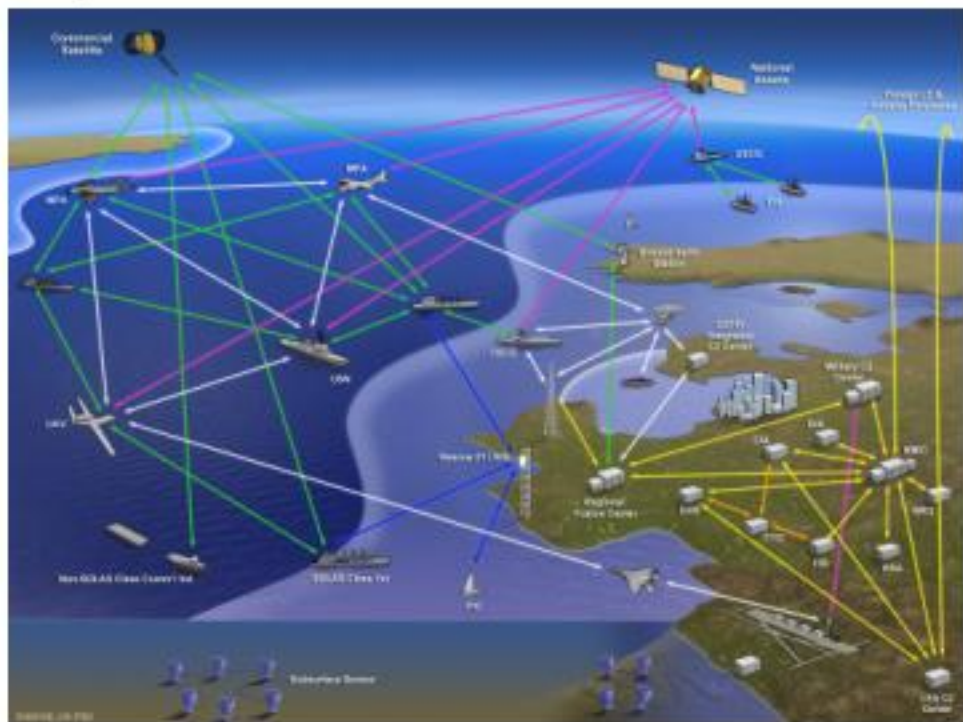
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# Maritime Domain Awareness

- Expanding awareness of activities occurring in the maritime domain is critical to enhancing our performance across all mission areas.
- Identify and understand threats, and disseminate timely information to our operational commanders and our homeland security partners
- Respond to terrorist attacks, drug smuggling, illegal migration, distressed boaters, or illegal fishing



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# System of Systems Solution - Assets

## Current System:

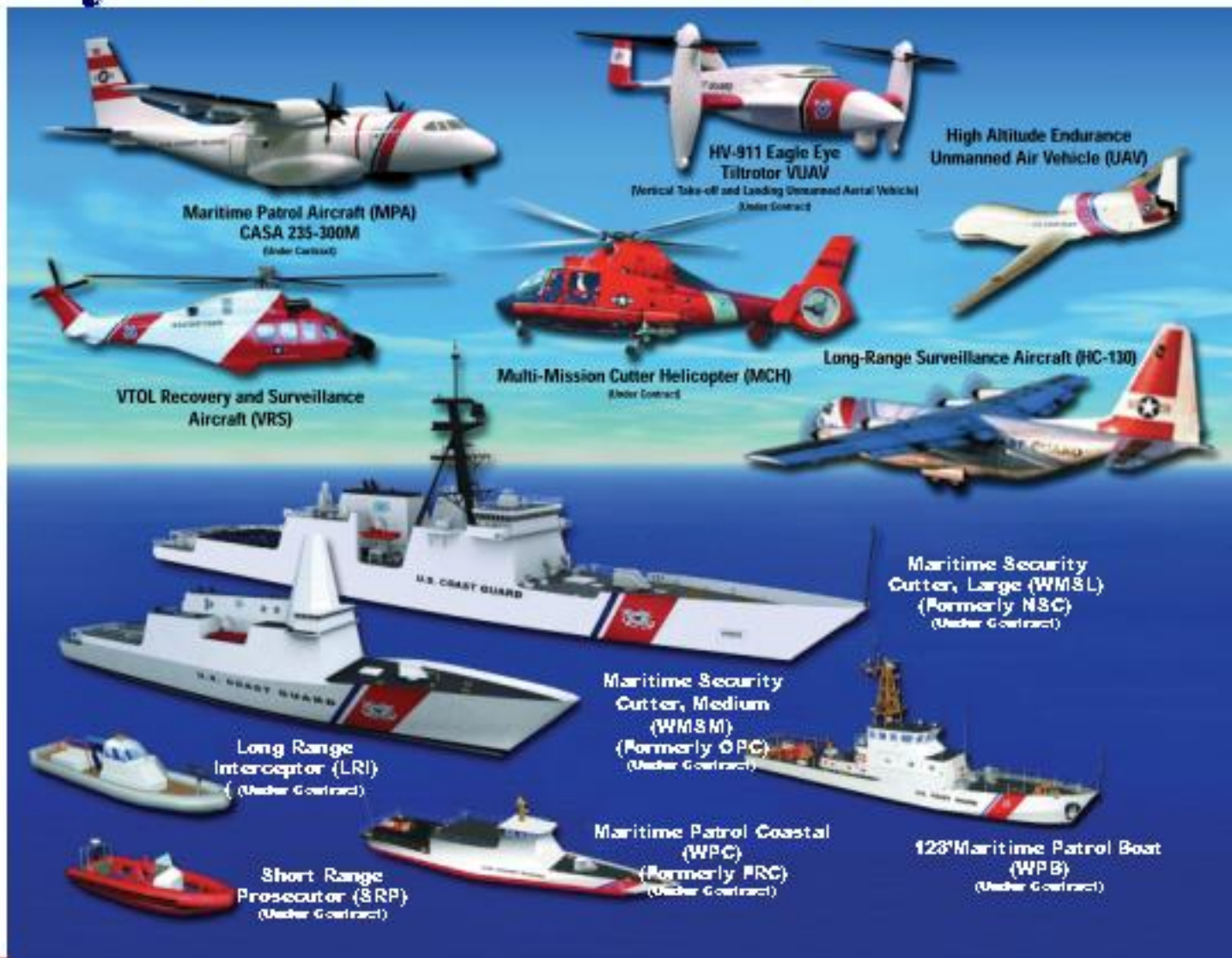
91 Ships

206 Aircraft

Associated C4ISR

Legacy Shore C2

Aging Support  
Infrastructure



## Added Capabilities:

System of Systems  
approach

Improved operating  
effectiveness while  
reducing total  
ownership cost (TOC)

Fully interoperable  
platforms

Capability based  
contracting model



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# System Solution – Network Centric



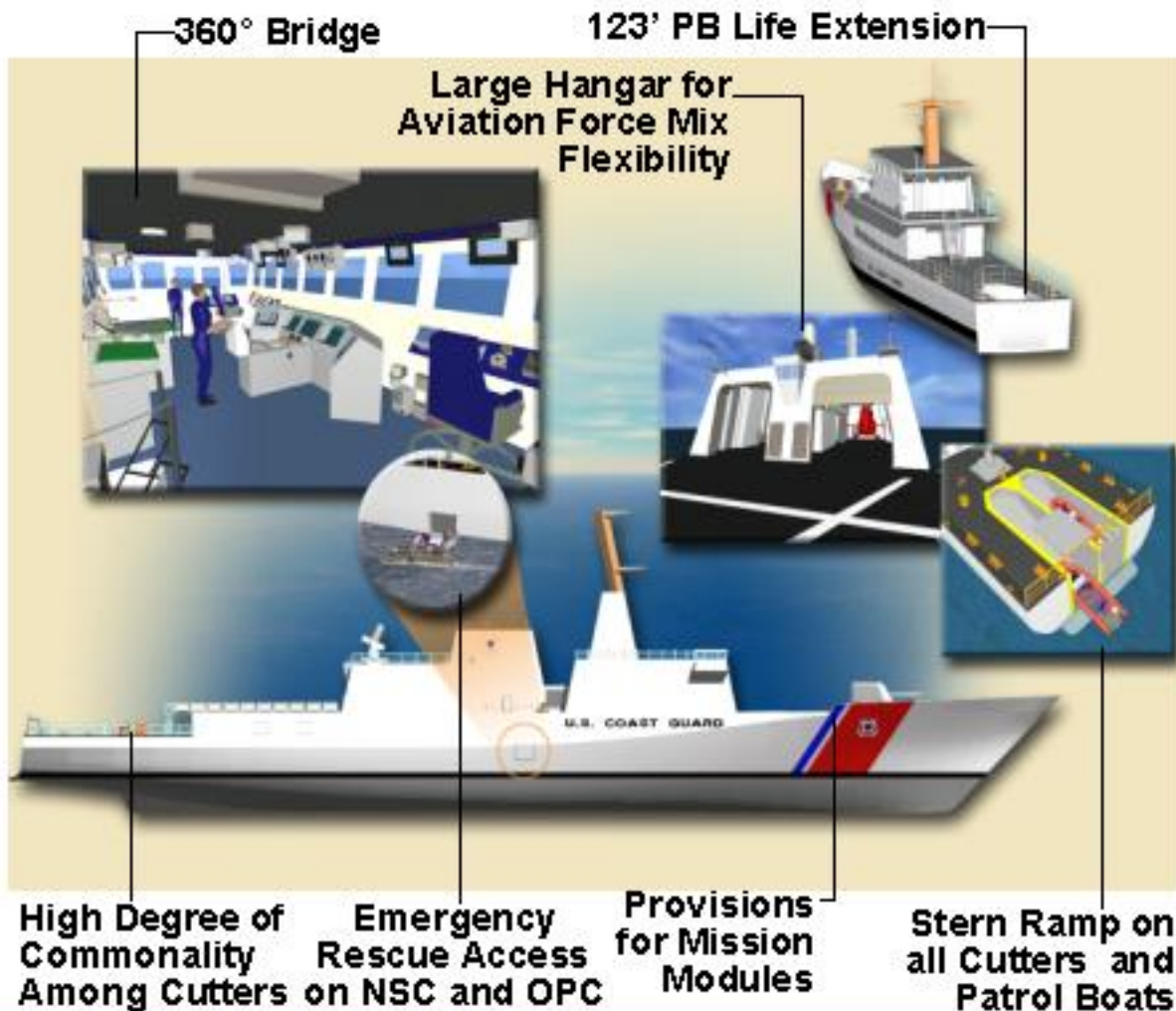
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# Surface Assets



## *Capability Improvements*

- New Cutters Designed With Mission and Capability Growth
- Provisions for Interchangeable Mission Modules to Enhance Flexibility Tailored to Missions
- Stern Ramps on All Cutters and Upgraded Patrol Boats Enhance Small Boat Launch and Recovery Operations With Less Crew
- Dramatically Improved Habitability Features Include 2/4 Person Staterooms, Fitness Centers, Lounges, and Learning Centers



















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# The Surface Ship Implementation

	2002	2007	2012	2017	2022
<b>New Construction</b>					
Maritime Security Cutter, Large					
Maritime Security Cutter, Medium					
Maritime Patrol Coastal					
Long Range Interceptor					
Short Range Prosecutor					
<b>Upgrades</b>					
110' Patrol Boats to 123' Patrol Boats					
<b>Retirement</b>	378' Cutter - 230' Cutter	378' Cutter - 213' Cutter	378' Cutter 282' Cutter - 210' Cutter	- 270' Cutter - 210' Cutter 123' Patrol Boat	



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# Maritime Security Cutter, Large (WMSL) Characteristics

*National Security Cutter [Delivery 2007 – 2013]*

Endurance/Range	60 Days / 12,000 nmi	Length	421 ft, LOA
Fuel	650 tons	Beam	54 ft
Crew, OFF/CPO/ENL	18/12/88	Draft	20.9 ft
Propulsion Plant	CODAG, 1 Gas Turbine, 2 Diesels	Displacement	3,886 tons, Full Load
Electric Plant	2 SSDGs + 1 Emergency Gen	Speed	28.1 kts (Sustained at 85% MCR)
Ship Control	Integrated Bridge		29.1 kts (Max at 100% MCR)



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# Maritime Security Cutter, Medium (WMSM) Characteristics

*Offshore Patrol Cutter [Delivery 2012 – 2022]*

Endurance/Range	45 Days / 9,000 nm	Length	341 ft, LOA
Fuel	400 tons	Beam	54 ft
Crew, OFF/CPO/ENL	14/8/72	Draft	17.25 ft
Propulsion Plant	2 Diesels, 3,800 BHP	Displacement	2,922 tons, Full Load
Electric Plant	2 SSDGs + 1 Emergency Gen	Speed	22 kts (Sustained at 85% MCR)
Ship Control	Integrated Bridge		23 kts (Max at 100% MCR)



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# Maritime Patrol Coastal (WPC) Characteristics

**Fast Response Cutter [Delivery 2018-2022]**

## General Characteristics:

Overall Length 130 ft  
Maximum Beam 21.8 ft  
Draft, Full Load 7.33 ft  
Accommodations 19  
Typical Operating Crew 15  
Propulsion (2) Diesel Engines 3,800 BHP  
Speed 30 kts  
Endurance 7 Days  
Displacement 198 LT  
Range 5,000 nm  
Mission Modules (Provisions for) 1 Aft

- Weapons—Stabilized 30mm and 0.50 cal Guns
- Stem Ramp Accommodates 1 SRP
- Replenishment—Fueling at Sea, Vertical Replenishment
- Increased Habitability—214-Person Staterooms
- High Commonality With NSC and OPC
- Reduced RCS—Reduced Signature Through Shaping (RCS)
- 360° Bridge
- Standard Tow Bitt



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# Maritime Patrol Boat (WPB)

**123' Patrol Boat (Legacy 110' SLEP) [Delivery 2004–2010]**

## Enhanced Bridge

- 360-degree view
- Deck area nearly doubled
- Centralized Alarm and Monitoring System
- Portable Bridge Wing Controls

## Enhanced C4ISR Suite

## New Deckhouse

- Staterooms allow dual-gender crew
- Admin office with medical triage area
- Crewmembers relocated from noisy aft berthing area

## Performance Enhancements

- Larger Rudders
- More Efficient Propellers
- Improved Engine Controls
- Machinery Monitoring

## 13-Foot Stern Extension with ramp

## Short-Range Prosecutor



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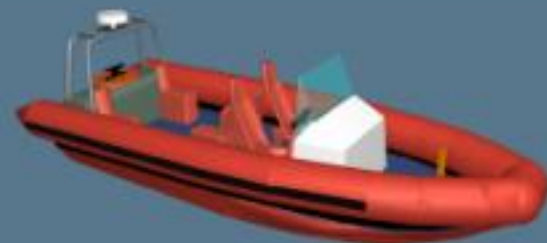
# Long Range Interceptor & Short Range Prosecutor Characteristics

**LRI and SRP [Delivery: 2004 – 2022]**



## Long-Range Interceptor

- **Propulsion** – Water Jet Engines for Stern Ramp Capability
- **Capacity** – Up to 14 Personnel With 150 lbs of Cargo
- **Speed** – 45 Knots



## Short Range-Prosecutor

- **Propulsion** – Water Jet Engine for Stern Ramp Capability
- **Capacity** – Up to 10 Personnel With 150 lbs of Cargo
- **Speed** – 36 Knots

Features	Benefits
<b>LRI</b> <ul style="list-style-type: none"> <li>▪ Slam-Mitigating Seats</li> <li>▪ Enclosed Coxswain Station</li> <li>▪ Radar</li> <li>▪ Over the Horizon Capability With Satcom and GPS</li> <li>▪ Stern Ramp Deployment/Recovery</li> </ul>	<ul style="list-style-type: none"> <li>▪ Decreased Fatigue for Boarding Teams</li> <li>▪ Increased Control and Handling</li> <li>▪ Faster, More Effective Prosecution</li> <li>▪ Extended Cutter Reach</li> <li>▪ Faster, Safer Operations With Less Crew</li> </ul>
<b>SRP</b> <ul style="list-style-type: none"> <li>▪ Slam-Mitigating Seats</li> <li>▪ Improved Communication</li> <li>▪ Excellent Sea-Keeping</li> <li>▪ Stern Ramp Deployment/Recovery</li> </ul>	<ul style="list-style-type: none"> <li>▪ Decreased Fatigue for Boarding Teams</li> <li>▪ Increased Control</li> <li>▪ Prosecution in Rough Water</li> <li>▪ Faster, Safer Operations With Less Crew</li> </ul>



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# Aviation Assets



## Capability Improvements

- All Aviation Assets Include Night/All-weather Capability With Radar and EO/IR Sensors
- Increased Communications and Common Operating Picture Capability
- MPA and VUAV Introduced in First Five Years Support Early Retirement of High-Cost-to-Operate Legacy Aircraft



Long Range Surveillance



Maritime Patrol Aircraft



High Altitude UAV



Multi-mission Cutter Helicopter



VTOL Recovery and Surveillance Aircraft



VTOL Unmanned Air Vehicle















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# The Aviation Asset Implementation

	2002	2007	2012	2017	2022
<b>New Construction</b>					
Maritime Patrol Aircraft					
Vertical Unmanned Aerial Vehicle					
Vertical Recovery System					
High Altitude Unmanned Air Vehicle					
<b>Upgrades</b>					
Dolphin HH-65					
<b>Retirement</b>					
Hercules					
Falcon					
Jayhawk					
	HC-130 HU-25	HC-130 HU-25	HC-130 - HH-60	HC-130 - HH-60	



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# Maritime Patrol Aircraft (MPA) Characteristics

**EADS CASA 235-300M "Persuader" MPA – Delivery 2006-2012**

## General Characteristics

Length	70 ft 3 in
Wingspan	84 ft 8 in
Cabin Length	31 ft 6 in
Cabin Height	6 ft 1 in
Cabin Width	8 ft 9 in
Maximum Take-off Weight	36,380 lb
Maximum Landing Weight	36,380 lb
Maximum Payload	11,200 lb
Fuel Capacity	1,379 gal
Number of 88" x 108" Pallets	2
Maximum Cruising Speed	232 kias

Take-off Distance to 50 ft (S/L, ISA, MTOW)	3,360 ft
Landing Distance from 50 ft (S/L, ISA, MTOW)	2170 ft
Maximum Range	2,165 nm
Range with 4000 kg Payload (8800 lb)	1,030 nm
Engines	2 x General Electric CT7-9C3 turboprop engines
Propellers	Hamilton Standard 14RF-37 (Four Bladed)

- Proven Military Twin Turboprop
- Extended Range Fuel System
- In Service as MPA
- Most Cost-Effective MPA Alternative

- Palletized Fully Integrated Tactical System
- Quick Change to Cargo or Passenger Role
- Rear Cargo Ramp



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# MCH Characteristics

**HH-65 MCH – Delivery 2007-2015**

## General Characteristics

Length	46.91 ft (44.4 ft)
Wing/Rotor Span	41.33 ft Rotor
Maximum Takeoff Weight	9,500 lbs (9,200 lbs)
Payload Weight (w/Fuel)	3,190 lbs
Empty Weight	6,333 lbs
Fuel Capacity	2,164 lbs (1,969 lbs)
Maximum Airspeed	165 kts
Cruise Speed	120 kts
Economy Speed	75 kts
Service Ceiling	15,000 ft/ 7,510 ft Hover
Maximum Endurance	3.5 hrs (2.9 hrs)
Maximum Range	467 nm (348 nm)
Operational Radius	178 nm (150 nm)
Number of Engines	2
Cargo Sling Hoist Capability	1,500+ lbs
Rescue Hoist Capability	600 lbs

- Leverages USCG Legacy Asset
- Low-Cost, Low-Risk Major Airframe Upgrade
- Increased TOGW, Range, Endurance

- New Avionics Common Fully Shipboard Deployable
- Margins for Use in Armed Helo Role
- Complements VUAV on NSC, OPC, and WMEC 270



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# VTOL Recovery and Surveillance Characteristics

***Bell-Agusta Aerospace AB-139 VTOL Recovery and Surveillance (VRS)  
Delivery 2014-2022***

## ***General Characteristics***

Length O/A	54.67 ft
Max Airspeed	185 kts
Cruise Airspeed	157 kts
Economy Airspeed	80 kts
Service Ceiling	16,750 ft
Maximum Endurance	5.0 hrs
Maximum Range	511 nm
Propulsion	2 Pratt & Whitney PT6C-67C
Cargo Ceiling Capacity	6,000 lbs
Rescue Hoist Capacity	600 lbs
Radius Of Action (SAR)	211 nm
Main Rotor	6 Blade Fully Articulated Elastomeric
Tail Rotor	4 Blade Fully Articulated Elastomeric
FAA Single Pilot IFR	Certified 3/2003
Rotor Span	45.27 ft
Max T/O Weight	14,550 lbs
Useful Load	5,250 lbs
Fuel Capacity	4,088 lbs



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# Vertical Unmanned Air Vehicle Characteristics

**Bell HV-911 "Eagle Eye" VTOL Unmanned Air Vehicle – Delivery 2006-2018**

## *Flight-Ready Configuration*



## *General Characteristics*

- All Composite Construction
- Fully Shipboard Deployable
- Low Maintenance (<1 MMH/FH)
- Up to 4 VUAVs per NSC or OPC
- Modular Mission Payloads (FLIR/EO, Radar, etc.)
- High Speed Dash (220 kts), Cruise (130 kts)
- Airplane Loiter (90 kts)
- Endurance 3.0 hrs @ 100 nm
- Height 5.7 ft
- Maximum Length 17.22 ft
- Maximum Wing Span 23.6 ft



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# High Altitude Unmanned Air Vehicle (HAUAV) Characteristics

**Northrop Grumman RQ-4A High Altitude (UAV) – Delivery 2016**

## General Characteristics

- DoD Surveillance Asset
- Low Risk After USAF Production, Testing, Fielding
- Huge Surveillance Areas Covered per Mission
- >3,000 nm Range, >30 Hours Endurance
- High-resolution Sensors (FLIR/EO, SAR, ISAR/GMTI)
- Range Endurance Allows Operation from Only 2 Sites
- Centralized Control from Ground Control Station
- GCS Integrated into CG-C2 System

## General Specifications

- Power Plant: Single Allison AE3007H (Approximately 7,000 Pounds Thrust)
- Length: 44 feet
- Height: 15 feet
- Weight: Approximately 25,600 Gross Take-off Pounds
- Wingspan: 116 feet
- Speed: 300 to 400 Kt True Air Speed (KTAS)
- Range: 1,200 nm Radius with 24 Hours On Station
- Loiter Altitude: 50,000 to 65,000 feet
- Fuel Capacity: 14,800 Pounds, JP-8

Payload Bay Can Accommodate up to 2,000 Pounds of Payload



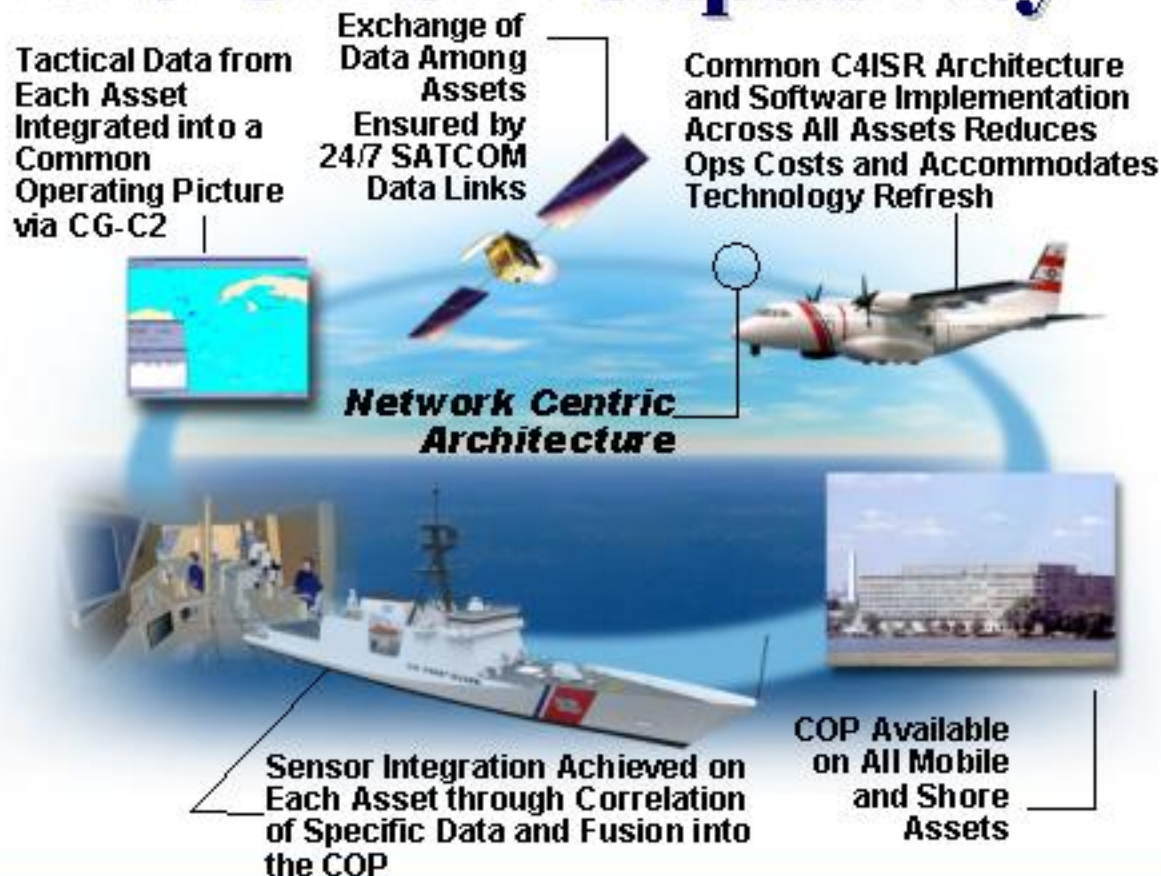
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# The C4ISR Capability



## Capability Improvements

- Common Command and Control Systems is Fully Integrated With All Sensors, Communications, and Legacy Interfaces
- Interoperability and Maritime Domain Awareness Established by IDS Assets and National Sources
- Imbedded Technical Refresh to Prevent Future Obsolescence

*Early Increased Situational Awareness, Surveillance, and Command is Provided through a Common Operating Picture to Answer Homeland Security Requirements*



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# The Manpower and ILS Enhancements



Asset Introduction  
Training

Condition-Based  
Maintenance

Personal Digital  
Assistant (PDA)  
Maintenance Support

## **Capability Improvements**

- Increased Automation Reducing Operator Workload, Training Requirements, and Enables Condition-based Monitoring
- Integrated Product Data Environment (IPDE) Maintains a Single, Authoritative Data Set Program-wide for Program Performance and Metrics
- Equipment Selection, Sparing, and Training Based on RMA Improves Readiness, Availability, and Supports System Response Reducing Operating Expenses



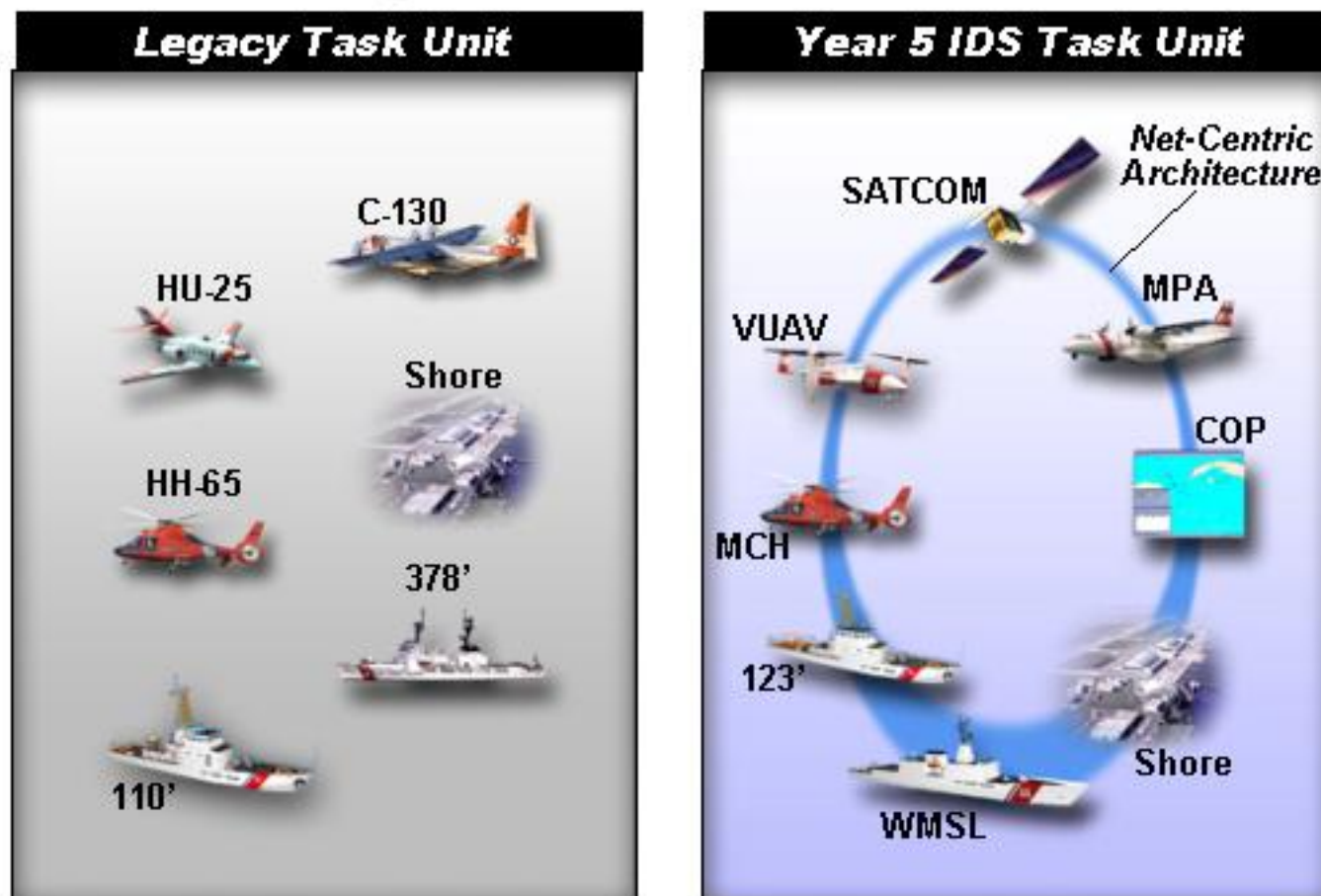
Modernization and  
Technology Insertion

Computer-Based  
Training

**Increased Automation and State-of-the-Art  
Technology, Decreased Manpower Requirements  
and Reduced Total Ownership Cost**



# System of Systems at Year 5



Low Risk Transition to Full Capability

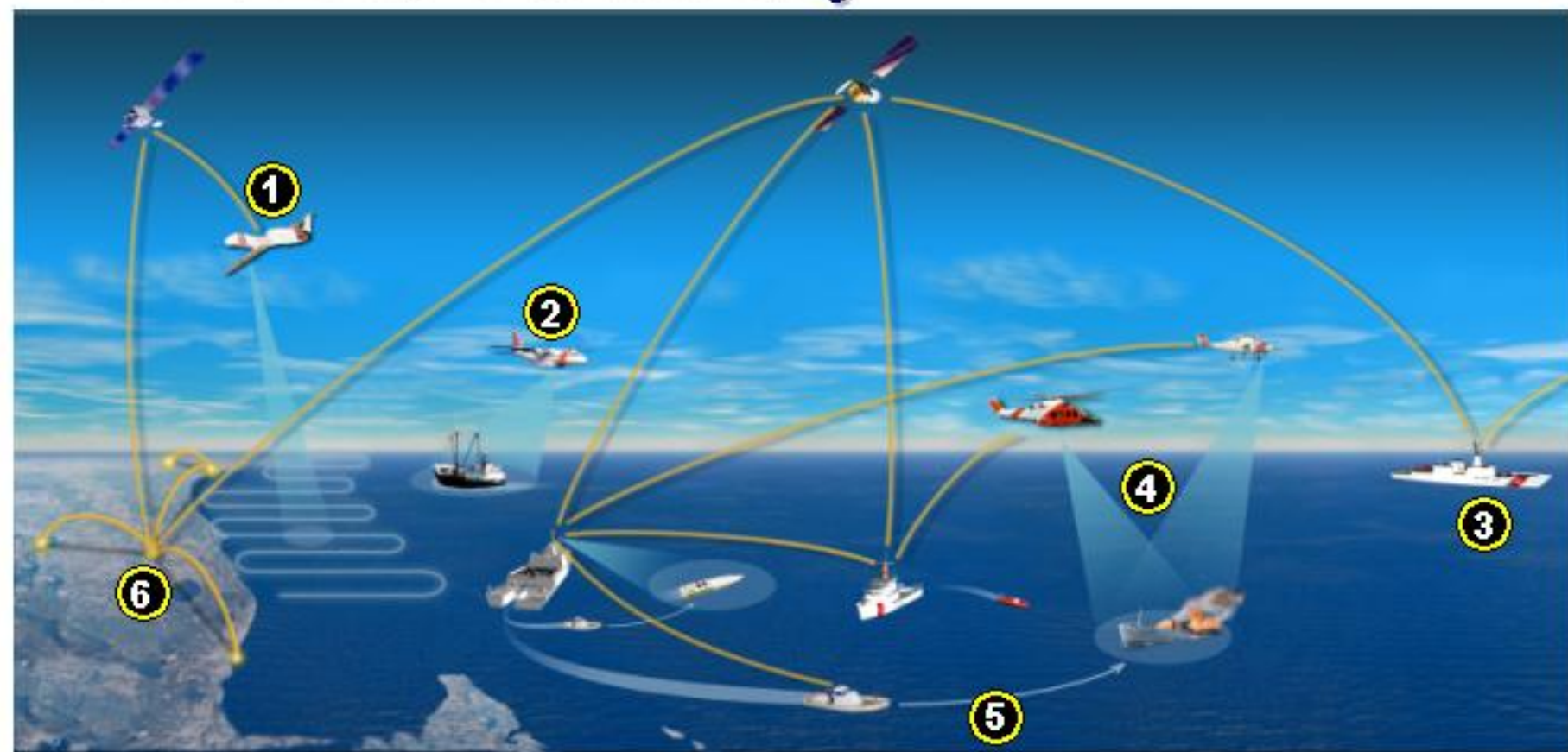


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# CONOPS Summary



1 HAUAV Wide Area Surveillance  
2 MPA Prosecution  
3 NSC Interoperability

4 Multi Asset Operation  
5 Over-the-Horizon Operations  
6 Shore-based Command Center



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# Why Deepwater?

- **Enables the Coast Guard to**
  - **Maintain credible presence in key maritime regions to deter potential threats to U.S. sovereignty**
  - **Exercise sea control and projection of law enforcement and naval/maritime power should deterrence fail**
- **Provides Nation best national security, military, law enforcement, and search & rescue capability for taxpayer's dollar**
- **Ensures USCG remains best CG in the world – military, multimission, maritime**

**Secures the Homeland**



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*“Our men and women in uniform deserve the best weapons, the best equipment, the best training...”*

President George W. Bush , State of the Union Address, January 2002